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Huber Technology upgrades the Inlet works at Duncrue Street, Belfast - a Wastewater case Study

Huber Technology successfully completed a large £1.2 million project at Duncrue Street, Belfast. The project consisted of supply of equipment and mechanical installation to the inlet works. Huber Technology worked extremely closely with the main contractor Graham Construction and Northern Ireland Water.





Project Profile

Any project large or small doesn't happen overnight and in most cases involves a lot of time and effort from a lot of people with different disciplines, experiences and very importantly local site knowledge needs to be involved. Duncrue Street, Belfast was typical of the effort that goes in to making sure that from the very start that a successful and fully functioning project is delivered and all parties and specifications and site requirements are not only met but in most cases exceeded.

From the initial enquiry, which was in 2011, regular dialogue has been undertaken between NIW, the design consultant, contractor and Huber Technology.

The understanding and appreciation by all of the high elevated and compact inlet works fed by 5 off large screw pumps meant that any issues relating to hydraulics were of the utmost importance. Any failures in this respect would cause extensive damage and untidiness to the surrounding area. In addition to this the existing 6 off coarse and 6 off fine screens on site along with their associated dedicated very long screw conveyors and handling equipment were continually causing issues concerning of not only carryover of screenings but high maintenance and reliability problems. This compounded with the high peaks of loadings in respect of flow and rags meant that the operation of the works involved large amount of manpower and monitoring to take place by NIW.

During the long dialogue with all parties Huber Technology had to take into account the very critical site hydraulics and control philosophy requirements for this site along with the right selection of equipment to be used and the associated sizing that goes with this. The coarse screens chosen were used to protect and reduce the solids loading onto the 6mm escalator screens which have one of the highest screenings capture ratios on the market today of 84%. This would ensure that pump blockages and rags were not carried over into the works. Additionally Huber Technology suggested that in place of the very long and maintenance intensive duty standby screw conveyors that a launder system be utilized. This eliminated the need for the very complicated and maintenance intensive screw conveyors and duty / standby change over systems.

One of the important aspects of this is that at all stages of the contract, meetings took place to ensure that all parties were aware of the current situation and all parties agreed the way forward.

Huber Technology Supplied

- 6 x [HUBER EscaMax® Belt Screen](#) 5000 x 2252 with 6mm perforated plate
- 6 x [HUBER RakeMax® Multi-Rake Bar Screen](#) 4300 x 2250 with 50mm bar spacing
- 4 x [HUBER WAP/SL Screenings Wash Press](#), size BG12
- All [Launder Channels](#)
- DN350 Knifegate valves

Equipment

- EscaMax® Screen throughput 2100 l/s peak flow per screen (5 off duty screens and 1 standby)
- RakeMax® Screen throughput 2100 l/s peak flow per screen (5 off duty screens and 1 standby)
- WAP SL max throughput of 15m³/hour per unit (duty + standby for coarse and fine screens each)
- Launder Channels for a flow rate of 25 l/s



Objective

A phased installation was crucial on this project to keep the existing works active which had been agreed with Graham Construction and Northern Ireland Water. As you can see from the photos the equipment offered had to also fit within the existing very tight sites hydraulic constraints.

Solution

The equipment was delivered directly to site where our regional service office based in Portadown, Northern Ireland took over the mechanical installation and commissioning. This proved to be a valuable resource and ensued that the project moved forward and any issues were quickly resolved. The HUBER equipment was successfully commissioned after a 28 day testing period already on 16th October 2013.

“Having a strong local presence with a dedicated team and skilled technicians able to deliver this to a consistent high standard of workmanship ensures the project is delivered on time with the highest quality to the client. Huber is a global company with a local presence, the client has a local contact and this means project delivery of any size or complexity can be delivered with minimal fuss. Duncrue Street, Belfast will then be supported throughout its lifetime by the local regional team with prompt response and support to the end user.” commented Kieran Hagan, Regional Field Manager Ireland.

Fred Neumann, Regional Sales Manager for Huber Technology also explained “The complexities of this major project were successfully minimized and overcome, due to early engagement with NIW operations/ project manager, consultants, main contractor and their subcontractor. Installation phasing and commissioning problems had minimum impact on the project delivery. This was down to the integrity and commitment of the local Huber Technology installation team.”

Product Profile

- **EscaMax® Belt Screen**
 - Versatile inlet screen
 - Excellent separation efficiency due to its perforations
 - Reliable cleaning of the perforated plates with a rotating brush

- Very compact system with minimum space requirements
 - Easy to retro fit into existing channels
- **RakeMax® Multi Rake bar Screen**
- Very high screenings discharge capacity
 - Low headloss
 - Low installation height above ground level even in deep channels
 - Control independent safety system
- **WAP-SL Superior launder Wash Press**
- Volume, weight and disposal cost reduction of up to 85%
 - Compaction up to 50% DR
 - High washed screenings quality of < 20mg BOD ₅/g DR
 - Feeding through a launder channel or directly from a screen or conveyor

Quotes

"In January 2013 Huber Technology were appointed as a sub-contractor to GRAHAM Construction to supply and install 6 No new course and fine screens at Belfast WwTW under the IWWF Phase 2 Base Maintenance scheme. Works commenced on site in July 2013 and were successfully handed over officially to NI Water in May 2014. The quality of product, workmanship and co-operation provided by Huber for this scheme was of a very high standard." explained Gerard Mc Keever, Project Manager for GRAHAM Construction.

Peter Neeson, Operations Manager from NIW explained in the following 3 bullet points how well the project was carried out:

- "The reliability of the HUBER equipment has been excellent giving just minor teething problems which have been addressed and sorted effectively by both Huber Technology and the main contractor Graham Construction
- The screening capture rate, by both the course and fine sets of screens is excellent, evident now by how quickly the skips fill, and the significant reduction in Sewage related debris downstream of the screens. This has meant less pumping and treatment process problems for myself and break downs for NIW M&E. Prior to the new Huber screening system being installed the old one used to pass forward into the works large amounts of sewage debris which often settled out with the sludge's. This issue drew complaints of pump blockages etc. from the sludge incinerator team (previously NIW) now Veolia water and NIW M&E. Pump blockages are rarely an issue now on site.
- Screenings handling has been vastly improved by the installation of the Huber WAPs and launder trough system. It replaced a screw conveyor and compaction units which were housed in a purpose built building, this made the maintenance of the old units a dirty and sometimes dangerous job because of space and lighting issues. The WAP's seem to be well capable of dealing with plug flows of screenings that occur from time to time BWWTW catchment is fairly flat, so in wet weather screenings can arrive at the works on mass after a dry spell, the new WAP's seem to be very good at dealing with this."

For more information please contact HUBER Technology UK, Rachael Harvey: +44 1249 765052, email rhhuber.couk

Related Products:

- [HUBER Tamis à champs filtrant EscaMax®](#)
- [HUBER Dégrilleur droit à raclage continu RakeMax®](#)
- [HUBER Presse-laveuse haute performance WAP® SL](#)

Related Solutions:

- [HUBER Solutions for Mechanical Pre-Treatment](#)

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